



May 27, 2015

WBS NUMBER: 44105.1.FD1
TIP NUMBER: W-5516
F.A. NUMBER: HSIP-1221(18)
COUNTY: Rowan
DESCRIPTION: Realignment of Old Beatty Ford Road from west of Bostian Rd. Intersection to Lentz Road

SUBJECT: Geotechnical Report – Design and Construction Recommendations

HDR | ICA Engineering, Inc. has completed the subsurface investigation for this project and submits the following recommendations.

I. SLOPE AND EMBANKMENT STABILITY

A. Slope Design

It is recommended that all fill embankment be constructed at a ratio of 2:1 (H:V) or flatter. It is recommended that all cut slopes be constructed at a ratio of 2:1 (H:V).

B. Undercut

A quantity of 150 cubic yards of shallow undercut is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the Engineer.

C. Geotextile for Soil Stabilization

A quantity of 150 square yards of geotextile for soil stabilization is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the Engineer.

II. SUBGRADE STABILITY

A. Undercut for Subgrade Stability

Soils were encountered consisting of highly plastic clays with plastic indices (PI) greater than 25. These soils could adversely impact the proposed pavement structure and should be undercut. These areas are shown by a double hatch symbol of the cross sections. The depth of undercut should be up to 3 feet or to suitable soil, whichever is less.

<u>LINE</u>	<u>STATION</u>	<u>OFFSET (FEET)</u>
-L-	73+50 to 74+00	CL to 22 RT
-L-	134+00 to 139+00	20 LT to 23 RT

It is recommended that 1,600 cubic yards of undercut be included in the project contract for subgrade stability. The material may be used in embankment construction at the discretion of the Engineer. An additional quantity of 200 cubic yards of undercut is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the Engineer.

B. Aggregate Subgrade

A quantity of 150 cubic yards of shallow undercut is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the Engineer.

A quantity of 300 tons of Class IV material is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the Engineer.

A quantity of 300 square yards of Geotextile for Soil Stabilization is recommended for inclusion in the contract item, to be used at the discretion of the Engineer.

C. Geotextile for Soil Stabilization

It is recommended that 1,600 square yards of geotextile be included in the project contract for subgrade stability at the following locations:

<u>LINE</u>	<u>STATION</u>	<u>OFFSET (FEET)</u>
-L-	73+50 to 74+00	CL to 22 RT
-L-	134+00 to 139+00	14 LT to 14 RT

A quantity of 200 square yards of geotextile for soil stabilization should be included in the project contract as a contingency item, to be used at the discretion of the Engineer.

III. BORROW SPECIFICATIONS

A. Borrow Criteria

Common borrow for embankment construction to subgrade shall meet Statewide criteria outlined in the Standard Specifications, Article 1018-2(A).

B. Select Granular Material

Select Granular Material for embankment construction on geotextile for soil stabilization shall meet the criteria outlined in Standard Specifications, Article 1016-3 Class II or III.

A quantity of 300 cubic yards of Select Granular Material should be included in the project contract as a contingency item, to be used at the discretion of the Engineer.

C. Shrinkage Factor

Recommend a 20 percent shrinkage factor be used for earthwork calculations.

IV. MISCELLANEOUS

A. Reduction of Unclassified Excavation – Clearing and Grubbing

Given the amount of excavation on this project, removal of topsoil, rootmats, stumps, shrubs, trees, and other ground cover is anticipated to be significant to include as a reduction in the excavation quantity. It is recommended that 12,140 cubic yards of excavation quantity be reduced in the project contract.

B. Reduction of Unclassified Excavation – Unsuitable Unclassified Excavation

Soils were encountered consisting of highly plastic clays with plastic indices (PI) greater than 35 and other characteristics unsuitable for construction (i.e. plastic limits equally moisture contents). It is recommended that 1,650 cubic yards of excavation quantity be reduced in the project contract.

C. Unclassified Excavation – Unsuitable Waste

Soils were encountered consisting of highly plastic clays with plastic indices (PI) greater than 35.

<u>LINE</u>	<u>STATION</u>	<u>OFFSET (FEET)</u>
-L-	72+00 to 74+00	70 LT to 70 RT
-L-	134+00 to 138+50	40 LT to 40 RT

D. Rock Blasting

Crystalline Rock (Felsic Metavolcanic Rock) is present within six feet of proposed grade at the following locations and may require blasting. It is recommended that 11,125 cubic yards be included in the project contract at the following locations:

<u>LINE</u>	<u>STATION</u>	<u>OFFSET (FEET)</u>
-L-	65+50 to 67+50	42 LT to 30 RT
-L-	73+00 to 77+50	47 LT to 42 RT
-L-	94+50 to 98+00	45 LT to 35 RT
-L-	103+00 to 105+00	34 LT to 32 RT

The crystalline rock encountered on this project is shown on cross-sections within the inventory report. Refer to Section 220 of the 2012 Standard Specifications for rock blasting.

E. Rock Slopes

Rocks cut slopes are anticipated at the following locations:

<u>LINE</u>	<u>STATION</u>	<u>OFFSET (FEET)</u>
-L-	65+00 to 67+50	42 LT to 30 RT
-L-	73+00 to 78+00	47 LT to 42 RT
-L-	94+00 to 98+00	45 LT to 35 RT
-L-	102+50 to 105+50	34 LT to 32 RT

Prepared by,



DocuSigned by:
kenneth R. Bussey, Jr.
22A188C7B3D7442...

6/8/2015

Kenneth R. Bussey, Jr., PE
Project Engineer



**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT**

Summary of Quantities

WBS Number: 44105.1.FD

County: Rowan

Project Engineer: Kenneth R. Bussey, Jr.

TIP Number: W-5516

Field Office: HDR | ICA

Project Geologist: Mike Gragg

Description: Old Beatty Ford Rd. from west of Bostian Rd. intersection to Lentz Rd.

Pay Item No.	Pay Item/Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
0036000000-E	Undercut Excavation	225 - Roadway Excavation	I. B	Contingency	N/A	N/A	150	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. A	-L-	73+50.00	74+00.00	50	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. A	-L-	134+00.00	139+00.00	1,550	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. A	Contingency	N/A	N/A	200	CY
Total Quantity of Undercut Excavation =							1,950	CY
0195000000-E	Select Granular Material	265 - Select Granular Material	III. B	Contingency	N/A	N/A	300	CY
Total Quantity of Select Granular Material =							300	CY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	I. C	Contingency	N/A	N/A	150	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. B	Contingency	N/A	N/A	300	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. C	-L-	73+50.00	74+00.00	50	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. C	-L-	134+00.00	139+00.00	1,550	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. C	Contingency	N/A	N/A	200	SY
Total Quantity of Geotextile for Soil Stabilization =							2,250	SY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. B	Contingency	N/A	N/A	150	CY
Total Quantity of Shallow Undercut =							150	CY
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. B	Contingency	N/A	N/A	300	TON
Total Quantity of Class IV Subgrade Stabilization =							300	TON

These Items Only Impact Earthwork Totals

N/A	Loss Due to Clearing & Grubbing	200 - Clearing and Grubbing	IV. A	N/A	N/A	N/A	12,140	CY
N/A	Shrinkage Factor	235 - Embankments	III. C	N/A	N/A	N/A	20	%
N/A	Unclassified Excavation - Unsuitable Waste	225 - Roadway Excavation	IV. B	N/A	N/A	N/A	1,650	CY

PROJECT: 44105**REFERENCE:** W-5516**SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION****CONTENTS**

<u>LINE</u>	<u>STATION</u>	<u>PROFILE</u>
-L-	66+00.00 - I45+00.00	4 - 6

CROSS SECTIONS

<u>LINE</u>	<u>STATION</u>	<u>SHEETS</u>
-L-	7I+50.00 - I39+50.00	7 - II

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY RowanPROJECT DESCRIPTION Old Beatty Ford Road
West of Bostian Road Intersection to Lentz Road**RECOMMENDATIONS**

STATE	STATE PROJECT REFERENCE NO.	sheet no.	total sheets
N.C.	W-5516	1	12

CAUTION NOTICE

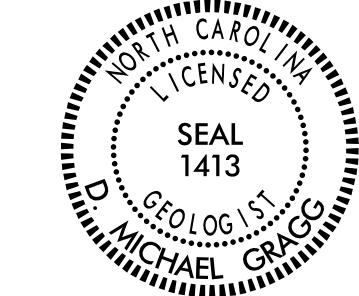
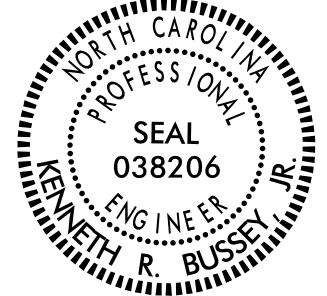
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACED) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC FACTORS, INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNELZ. BRUCEA. WILDERB. MASSEYINVESTIGATED BY M. GRAGGDRAWN BY T. STIVERSCHECKED BY K. BUSSEYSUBMITTED BY HDR | ICADATE APRIL 2015

 DocuSigned by: D. Michael Gragg <small>R67B5CEBC21A460</small>	 DocuSigned by: keneth R. Bussey, Jr. <small>22A188C7B3D7442</small>
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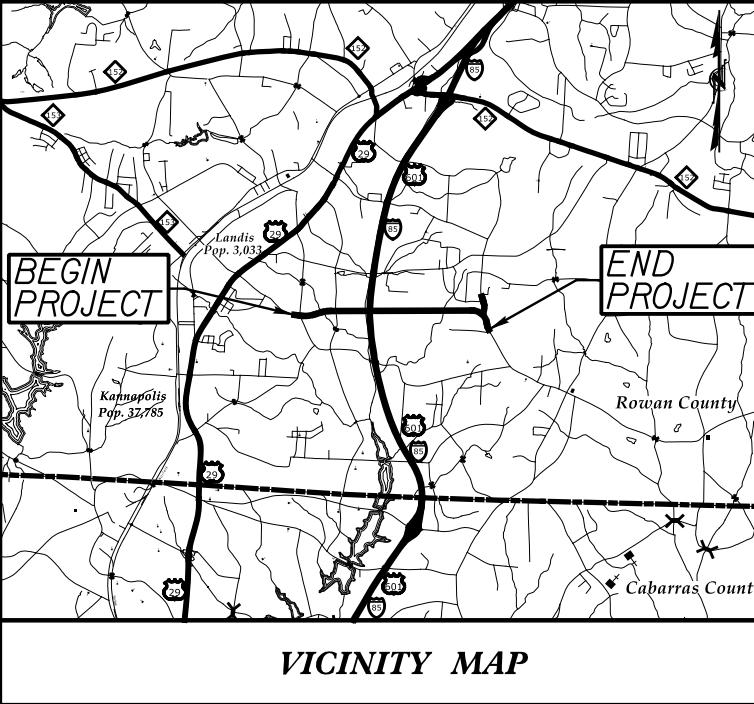
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION**

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION								GRADATION								ROCK DESCRIPTION								TERMS AND DEFINITIONS																
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6																																								
SOIL LEGEND AND AASHTO CLASSIFICATION																																								
GENERAL CLASS.																																								
GROUP CLASS.																																								
A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 A-6, A-7																																								
A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7																																								
SYMBOL																																								
% PASSING *10 *40 *200																																								
50 MX 30 MX 15 MX 50 MX 15 MX 25 MX 51 MN 35 MX 35 MX 36 MN 36 MN 36 MN																																								
MATERIAL PASSING *40 LL PI																																								
6 MX - NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN																																								
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX																																								
USUAL TYPES OF MAJOR MATERIALS STONE FRAGS, GRAVEL, AND SAND FINE SAND SILTY OR CLAYEY SILTY SOILS CLAYEY SOILS																																								
GEN. RATING AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR FAIR TO POOR POOR UNSUITABLE																																								
PI OF A-7-5 SUBGROUP IS \leq LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30																																								
CONSISTENCY OR DENSENESS																																								
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)																																								
GENERALY GRANULAR MATERIAL (NON-COHESIVE) VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE < 4 4 TO 10 10 TO 30 30 TO 50 > 50 N/A																																								
GENERALY SILT-CLAY MATERIAL (COHESIVE) VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD < 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30 < 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4																																								
TEXTURE OR GRAIN SIZE																																								
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053																																								
BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE. SD.) FINE SAND (F. SD.) SILT (SL.) CLAY (CL.)																																								
GRAIN SIZE IN. 12 305 75 2.0 0.25 0.05 0.005																																								
SOIL MOISTURE - CORRELATION OF TERMS																																								
SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION																																								
LL LIQUID LIMIT - SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE																																								
PL PL PLASTIC LIMIT - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE																																								
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE																																								
SL SHRINKAGE LIMIT - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE																																								
PLASTICITY																																								
PLASTICITY INDEX (PI)																																								
NON PLASTIC 0-5 6-15 16-25 26 OR MORE																																								
SLIGHTLY PLASTIC																																								
MODERATELY PLASTIC																																								
HIGHLY PLASTIC																																								
COLOR																																								
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY), MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.																																								
WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.																																								
ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.																																								
MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.																																								

CONTRACT:

TIP PROJECT: W-5516



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ROW PLANS

NAD 83/
NSRS 2007

VICINITY MAP

BEGIN TIP PROJECT W-5516
POT STA 15+50.00 -L-

BEGIN BRIDGE
-L- STA. 57+45.40

END BRIDGE
-L- STA. 62+75.40

COLD WATER CREEK

RELOCATED OLD BEATTY FORD RD.

TOWN BRANCH

SR 1221 (BOSTIAN RD.)

SR 1238 (CHINA GROVE RD.)

SR 1337 (LENTZ RD.)

END TIP PROJECT W-5516
POC STA 141+70.00 -L-

**NAD 83
NSRS 20**

NCDOT CONTACT: BRETT ABERNATHY, PE
DIVISION 9 PROJECT MANAGER

CLEARING ON THIS PROJECT SHALL BE PERFORMED
TO THE LIMITS ESTABLISHED BY METHOD III

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



DESIGN DATA

ADT	=	
ADT	=	
DHV	=	%
D	=	%
T	=	% *
V	=	50 MPH
* TTST	=	DUAL
FUNC	CLASS	= COLLECTOR
REGIONAL		TIER

PROJECT LENGTH

*Prepared for the
North Carolina Department
of Transportation
in the office of:*

2012 STANDARD SPECIFICATION

RIGHT OF WAY DATA

LETTING DATE:
SEPTEMBER 15, 201

HDR | **ICA**

ns |

E: DAVID C. WALLER, PE
PROJECT ENGINEER

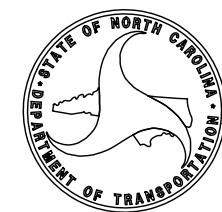
HENRY BARE

HYDRAULICS ENGINEER

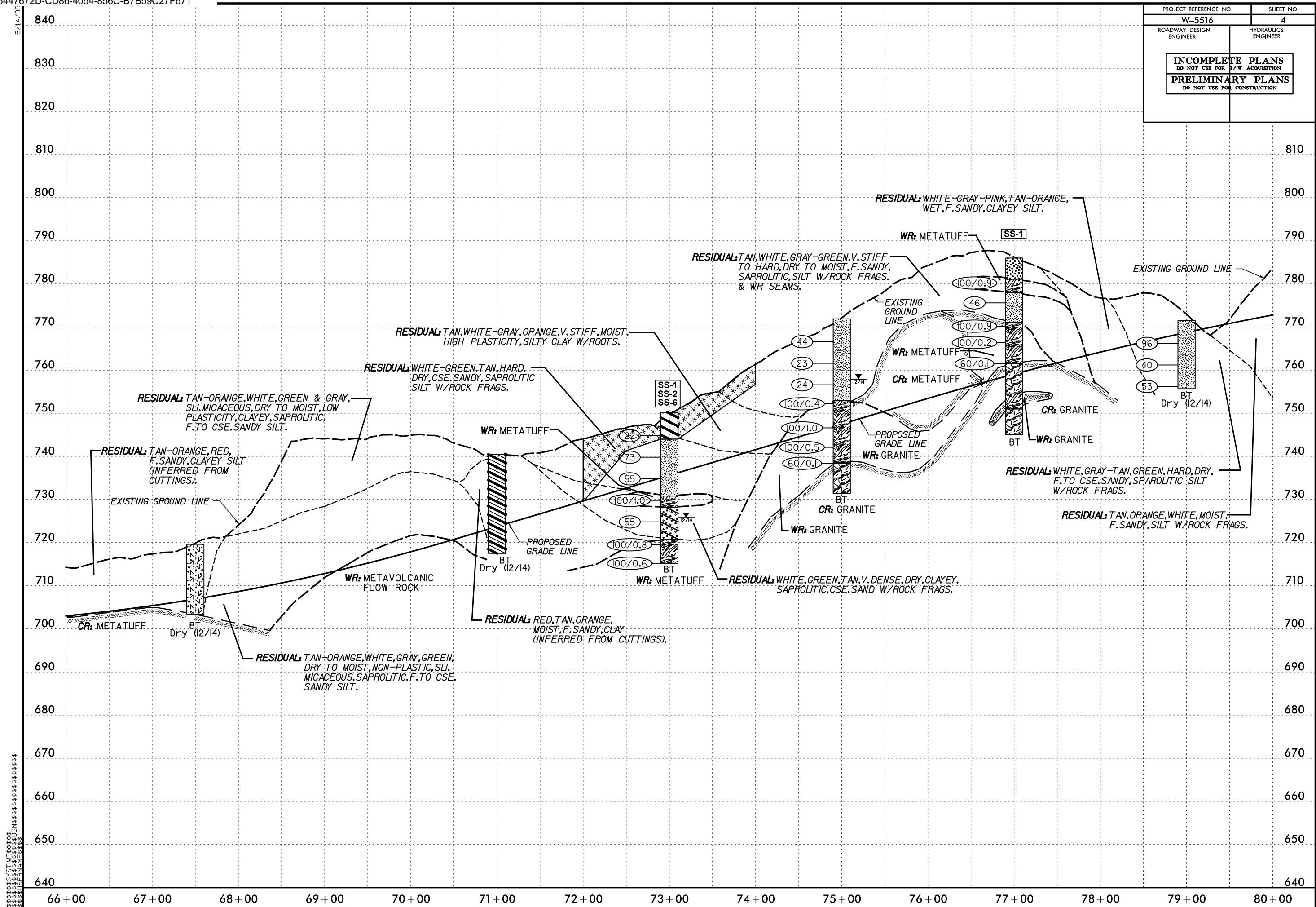
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ROADWAY DESIGN ENGINEER

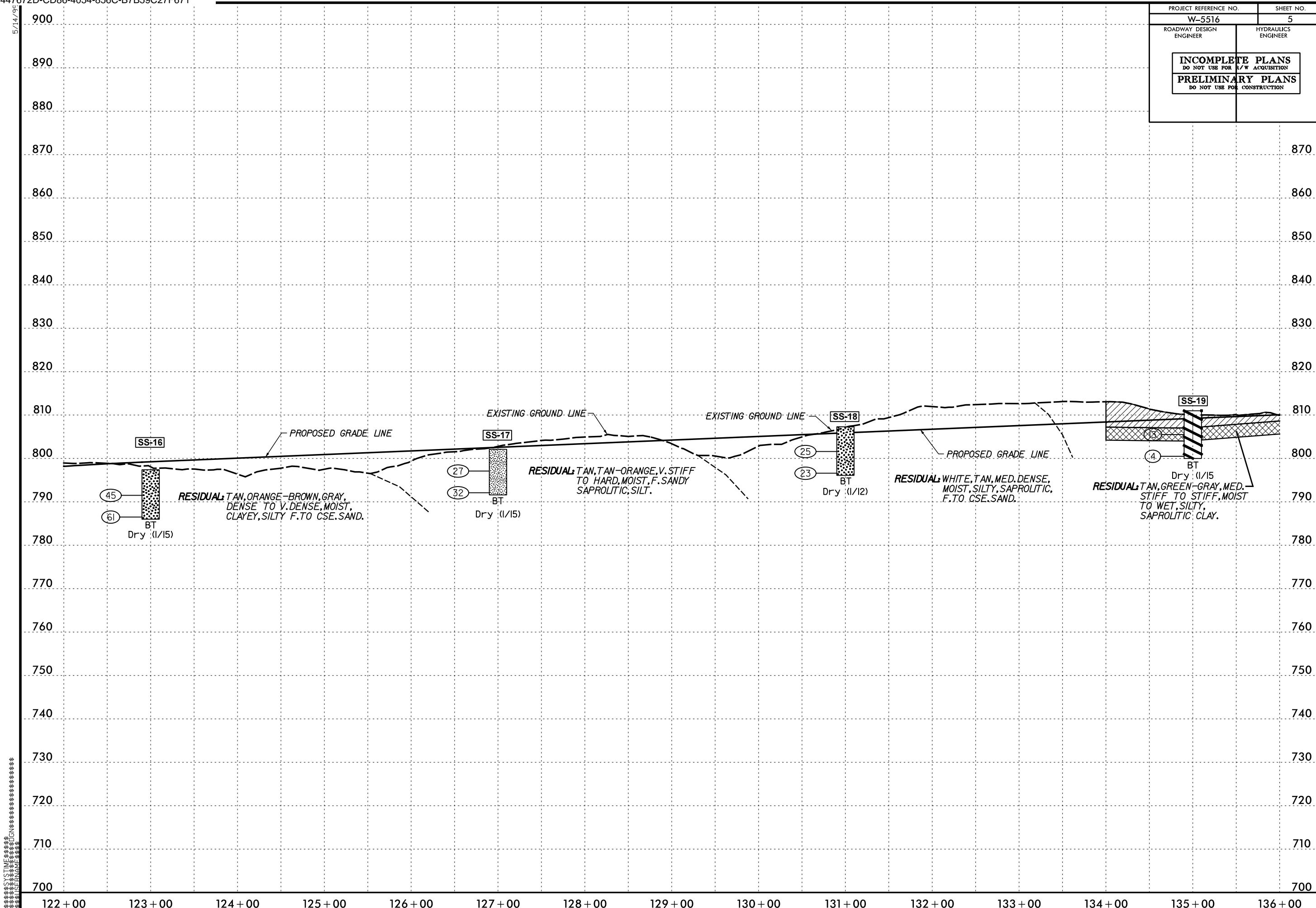
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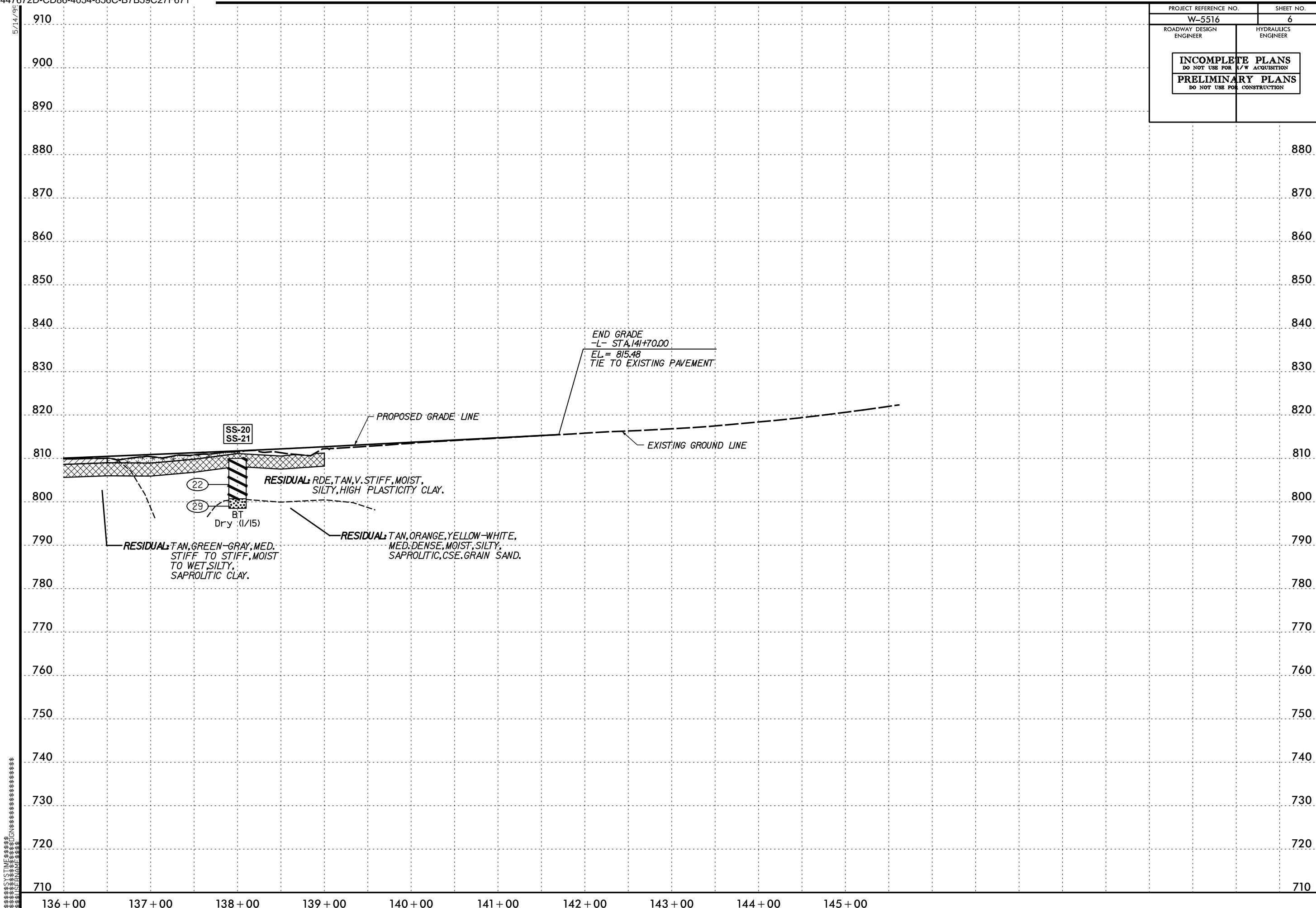
PROJECT REFERENCE NO.		SHEET NO.
W-5516		4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

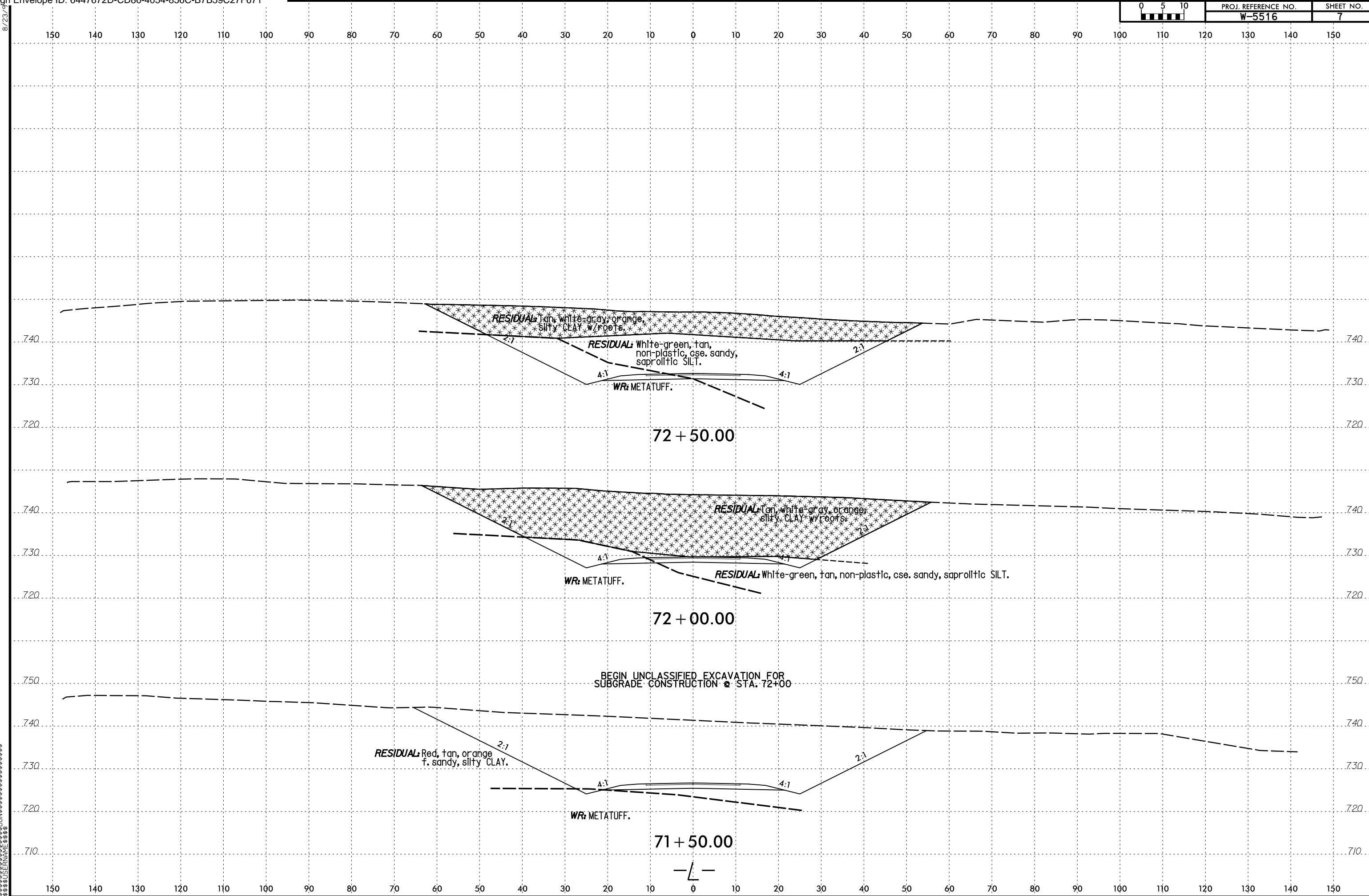


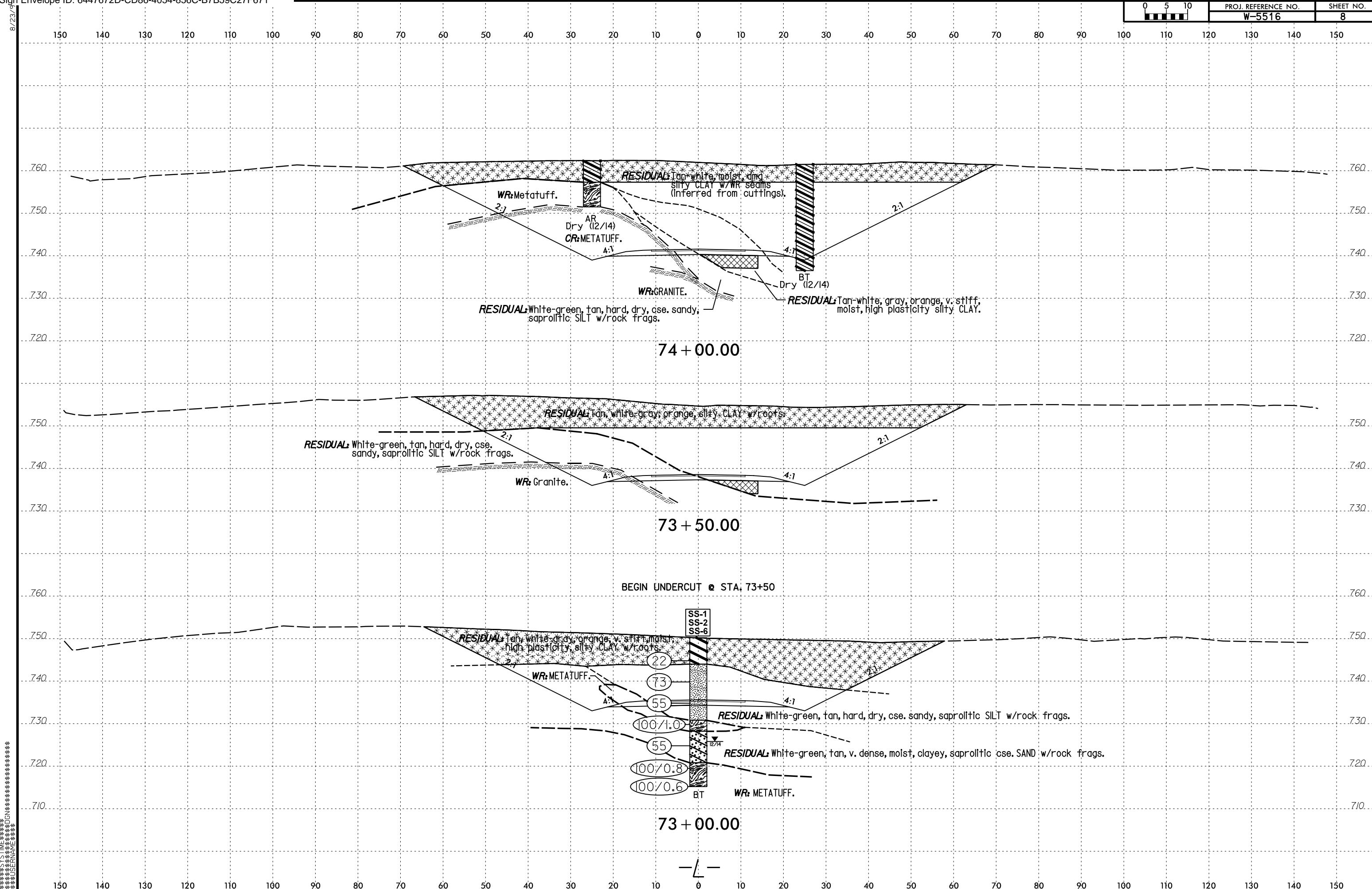
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W-5516	5	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR S/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

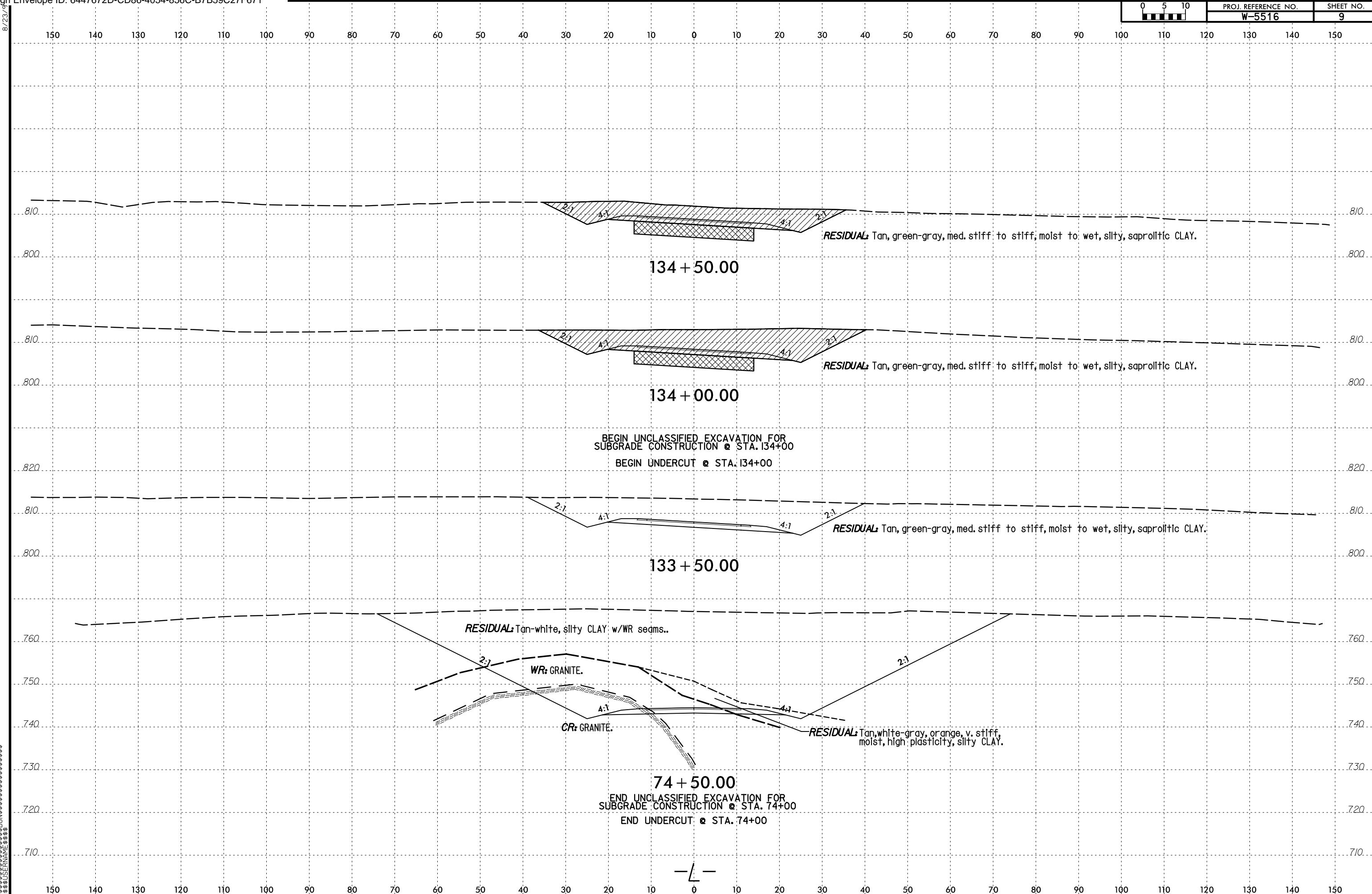


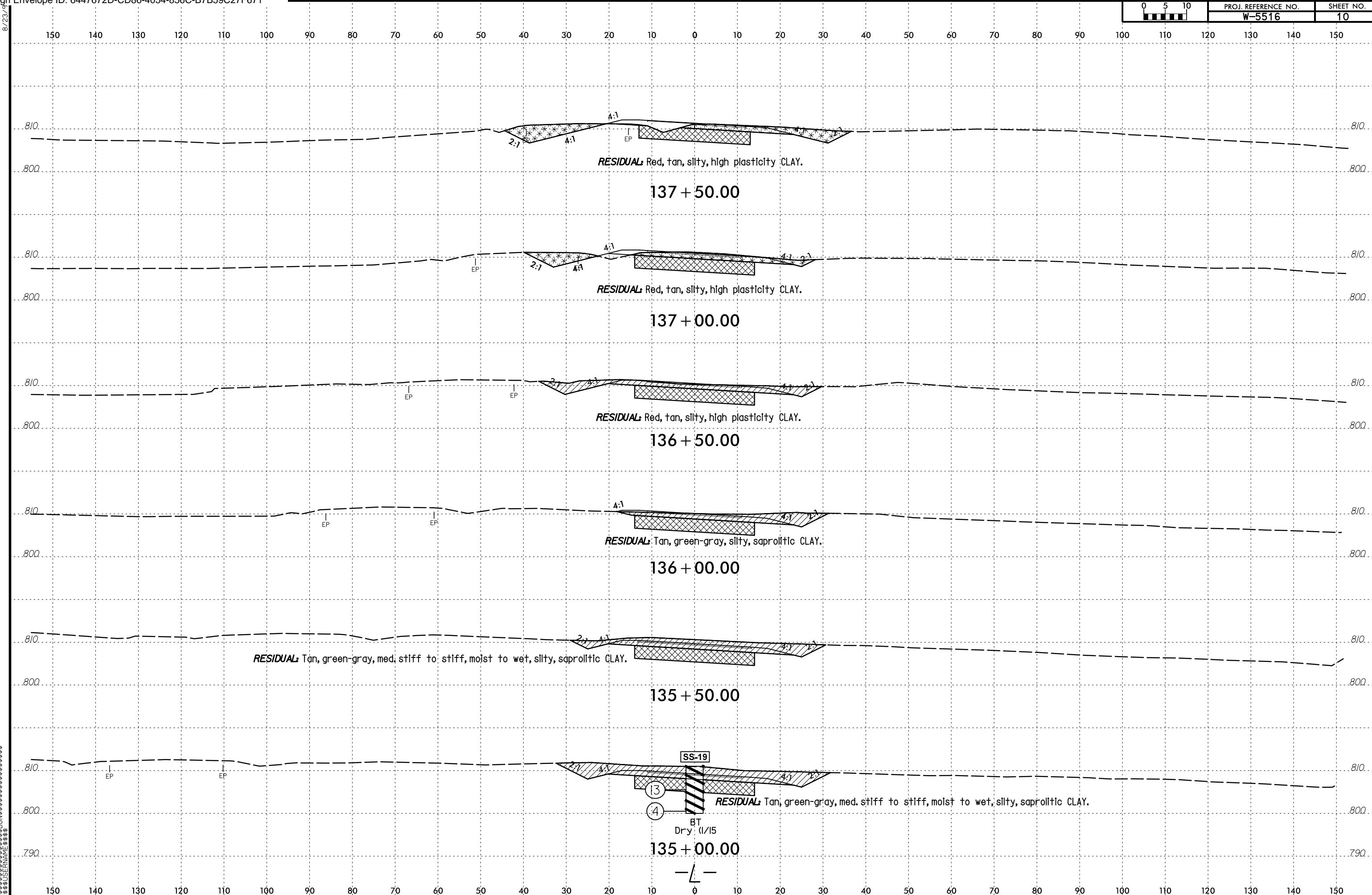
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W-5516	6	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR S/W ACQUISITION		
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		

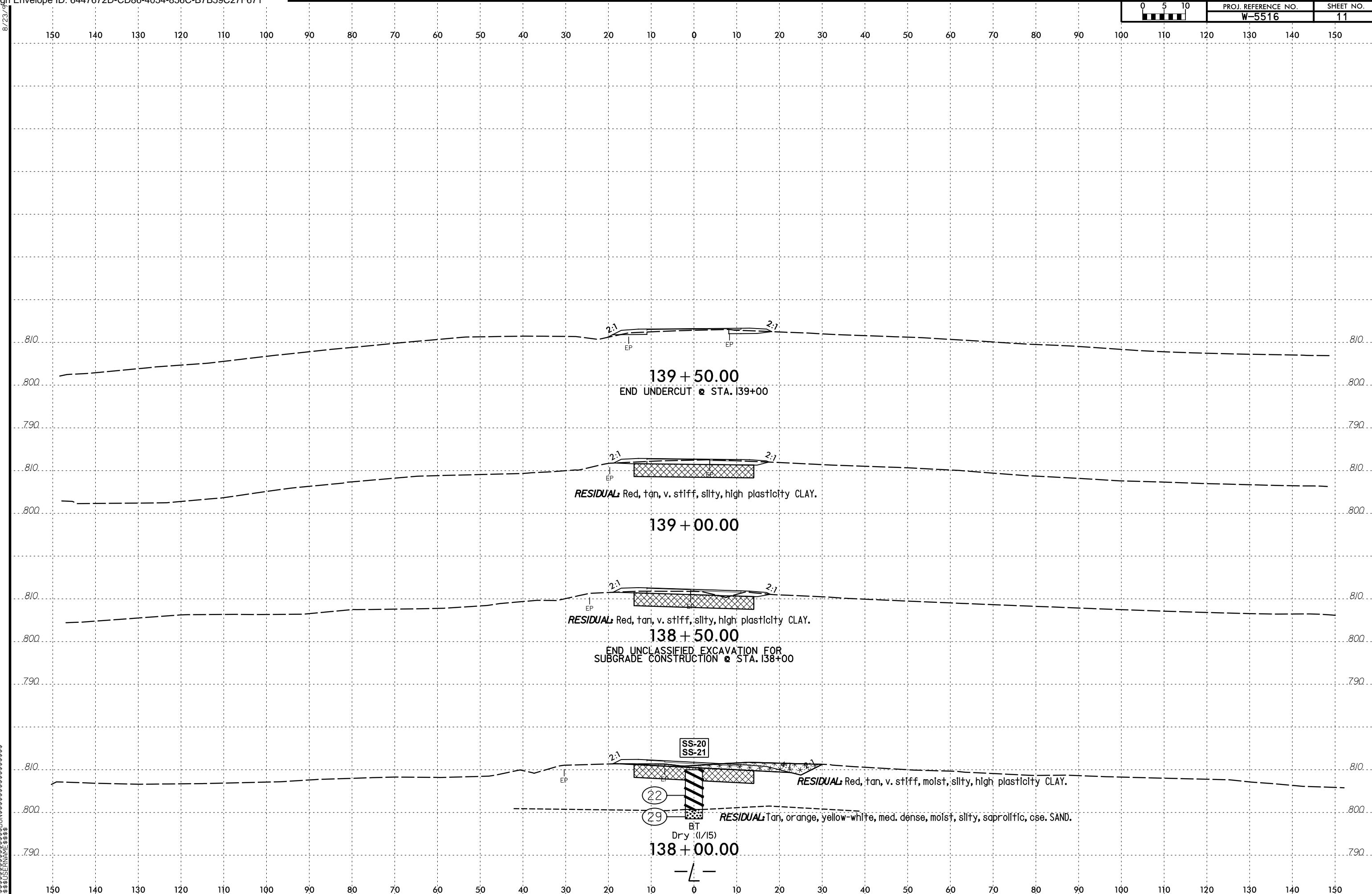












SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-1	CL	73+00	4.4-5.9	A-7-5(36)	67	29	1.7	4.8	39.9	53.6	100.0	98.9	95.5	32.3	-
SS-2	CL	73+00	9.4-10.9	A-4(0)	27	2	39.8	19.9	28.3	12	92.0	64.0	42.6	10.6	-
SS-3	CL	79+00	9.3-10.8	A-4(1)	34	9	23.7	22.9	35.3	18	68.1	55.5	41.9	14.7	-
SS-4	CL	77+00	9.4-10.9	A-4(3)	32	2	2	19.6	67.5	10.9	99.9	98.9	86.1	17.8	-
SS-5	43' RT	86+00	14.5-16.0	A-4(4)	38	5	12.7	28	45.3	14	99.9	95.1	67.8	25.4	-
SS-6	CL	73+00	24.4-25.9	A-2-6(0)	28	12	48	15.6	16.4	20	46.4	28.6	18.9	15.0	-
SS-7	CL	101+00	4.5-6.0	A-4(4)	39	9	25	15.9	33.1	26.1	89.2	70.5	56.1	13.9	-
SS-8	CL	105+00	4.7-6.2	A-7-5(13)	54	23	27.3	8.6	24	40.2	91.0	69.3	60.3	19.3	-
SS-9	CL	101+00	9.5-11.0	A-4(1)	37	10	29.6	21.7	23.8	25	70.5	54.5	37.9	18.3	-
SS-10	CL	101+00	14.5-16.0	A-4(4)	40	4	8.6	23.5	48.7	19.2	94.6	89.9	70.9	25.3	-
SS-11	CL	101+00	19.5-21.0	A-4(5)	39	6	5.5	26.8	58.6	9.1	100.0	97.4	77.4	14.5	-
SS-12	CL	105+00	9.7-11.2	A-4(4)	39	6	14.5	21.4	40	24	89.5	79.8	63.4	26.4	-
SS-13	CL	105+00	19.7-21.2	A-2-4(0)	25	1	41	27.1	24	8	92.4	64.5	34.0	11.2	-
SS-14	CL	119+00	4.6-6.1	A-7-6(4)	51	24	52.7	11	19.2	17.1	93.9	50.2	36.8	22.9	-
SS-15	CL	119+00	9.6-11.1	A-4(0)	35	4	33.1	22.12	30.9	14	85.3	64.4	42.1	17.4	-
SS-16	CL	123+00	9.9-11.4	A-2-4(0)	22	2	51	23.2	17.9	7.9	91.4	54.3	27.8	10.5	-
SS-17	CL	127+00	9.0-10.5	A-4(3)	35	4	5.7	30.8	51.9	11.7	99.6	96.9	73.2	16.5	-
SS-18	62' LT	32+17	4.1-5.6	A-2-6(0)	30	12	29.2	30.1	20.7	20	71.6	57.4	35.0	18.7	-
SS-19	CL	135+00	9.5-11.0	A-7-5(17)	54	13	3.1	12.6	68.1	16.2	100.0	98.0	89.8	40.8	-
SS-20	CL	138+00	5.0-6.5	A-7-5(32)	63	29	6.1	5.5	26.9	61.4	99.8	95.4	89.8	28.6	-
SS-21	CL	138+00	10.0-11.5	A-2-4(0)	28	1	52.8	19.4	19.9	7.9	95.8	55.1	31.5	11.7	-
SS-22	80' RT	37+50	4.3-5.8	A-6(6)	33	13	10.2	30.3	30.8	28.7	89.2	84.4	63.2	10.6	-
SS-23	CL	52+00	4.5-6.0	A-7-5(15)	47	15	1.5	28	44.9	25.6	100.0	99.4	83.2	21.2	-
SS-24	CL	48+00	9.9-11.4	A-4(0)	30	NP	21	44.2	28.8	5.9	96.2	82.5	46.2	12.3	-
SS-25	34' RT	44+00	9.8-11.3	A-4(3)	38	6	4.6	51.2	34.3	9.9	99.8	98.4	58.2	22.2	-

\$\$\$\$\$SYSTIME\$\$\$\$\$DGNS\$\$\$\$\$DGNS\$\$\$\$\$DGNS\$\$\$\$\$DGNS